

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A pump/motor, comprising:
a back plate having first and second fluid ports configured to be differentially pressurized;
a plurality of reaction plates rigidly coupled to the back plate;
a valve plate slideably coupled to the back plate and having first and second fluid feed channels configured to receive fluid from the first and second fluid ports, and a surface configured to receive a rotatable cylinder barrel; and
a plurality of hold-down pistons positioned in respective hold-down cylinders formed in the valve plate, each of the hold-down pistons configured to be biased, by pressurized fluid in the respective hold-down cylinder, against a surface of one of the reaction plates, each of the hold-down pistons further configured to non-rotatably slide on the surface of the reaction plate.
2. (Previously Presented) The pump/motor of claim 1 wherein the valve plate is configured to slide against the back plate in an arc exceeding 20 degrees of rotation.
3. (Currently Amended) ~~The pump/motor of claim 1 wherein the plurality of hold-down pistons is~~ A pump/motor, comprising:
a back plate having first and second fluid ports configured to be differentially pressurized;
a plurality of reaction plates rigidly coupled to the back plate;
a valve plate slideably coupled to the back plate and having first and second fluid feed channels configured to receive fluid from the first and second fluid ports, and a surface configured to receive a rotatable cylinder barrel; and

a plurality of hold-down pistons distributed along first and second edges of a same surface of the valve plate in respective hold-down cylinders formed in the valve plate, each of the hold-down pistons configured to be biased, by pressurized fluid in the respective hold-down cylinder, against a surface of one of the reaction plates.

4. (Original) The pump/motor of claim 3 wherein at least one of the hold down pistons distributed along the first edge of the valve plate is in fluid communication with the first fluid feed channel and at least one of the hold-down pistons distributed along the second edge of the valve plate is in fluid communication with the second fluid feed channel.

5. (Original) The pump/motor of claim 4 wherein at least one of the hold down pistons distributed along the first edge of the valve plate is in fluid communication with the second fluid feed channel and at least one of the hold down pistons distributed along the second edge of the valve plate is in fluid communication with the first fluid feed channel.

6. (Currently Amended) The pump/motor of claim ~~4~~3 wherein each of the plurality of hold-down pistons comprises an aperture passing along a central axis from a first surface to a second surface thereof.

7. (Original) The pump/motor of claim 1, further comprising:
a barrel, rotatably coupled to the valve plate and having a plurality of drive cylinders formed therein;
a plurality of drive pistons, each having a first end positioned in a respective one of the plurality of drive cylinders; and
a thrust plate having a surface configured to receive second ends of each of the plurality of drive pistons, the thrust plate coupled to a drive shaft of the pump/motor.

8. (Currently Amended) A hydraulic machine, comprising:
a back plate having a concave surface ~~in the~~whose shape ~~of~~defines a section of a first cylinder, the back plate being configured to slideably receive a valve plate thereon;

first and second fluid ports formed in the concave surface and configured to transmit differentially pressurized fluid to the valve plate; and

first and second reaction plates coupled to the back plate, each having a convex reaction surface ~~in the~~ whose shape and position defines of a respective section of a second cylinder, concentric to the first cylinder, the reaction surfaces of the first and second reaction plates substantially facing, and spaced a selected distance from, the concave surface of the back plate.

9. (Cancelled)

10. (Currently Amended) A method of operating a variable displacement hydraulic machine, comprising:

coupling a first pressurized fluid source to a rotatable barrel via a first fluid feed channel in a valve plate and a first fluid port in a back plate;

coupling a second pressurized fluid source to the rotatable barrel via a second fluid feed channel in the valve plate and a second fluid port in the back plate;

changing the displacement of the machine by sliding the valve plate in an arc along a surface of the back plate; and

biasing a plurality of hold-down pistons along respective axes lying normal to the arc, against a reaction plate coupled to the back plate.

11. (Previously Presented) The method of claim 10 wherein biasing the plurality of pistons further comprises coupling at least one of the plurality of hold-down pistons to the first pressurized fluid source via the first fluid feed channel and the first fluid port and coupling at least one of the plurality of hold-down pistons to the second pressurized fluid source via the second fluid feed channel and the second fluid port.

12. (Cancelled)

13. (Previously Presented) The method of claim 10 wherein biasing the plurality of pistons comprises coupling at least two of the plurality of hold-down pistons positioned on a first side of the valve plate to the first pressurized fluid source and coupling at least one of the plurality of hold-down pistons positioned on the first side of the valve plate to the second pressurized fluid source.

14. (Previously Presented) The method of claim 10 wherein biasing the plurality of pistons comprises coupling at least one of the plurality of hold-down pistons positioned on a first side of the valve plate to a fluid feed channel positioned on a second side of the valve plate and at least one of the plurality of hold-down pistons positioned on the second side of the valve plate to a fluid feed channel positioned on the first side of the valve plate.

15. (Currently Amended) The pump/motor of claim 1-3 wherein a central axis of hold-down cylinders formed in a first side of the valve plate lie in a first plane that is substantially perpendicular to the surface of the valve plate, and a central axis of hold-down cylinders formed in a second side of the valve plate lie in a second plane that is substantially perpendicular to the surface of the valve plate and parallel to the first plane.

16. (Currently Amended) The pump/motor of claim 1-3 wherein each of the plurality of hold-down pistons comprises a face that conforms to the surface of the respective reaction plate.

17. (Previously Presented) The pump/motor of claim 16 wherein each of the plurality of hold-down pistons comprises a fluid passage extending along a central axis thereof from a cylinder end to the face of the respective piston.

18. (Currently Amended) The pump/motor of claim 1-3 wherein at least one of the plurality of hold-down pistons has a diameter that is smaller than another of the hold-down pistons.

19. (Previously Presented) The pump/motor of claim 1 wherein the plurality of hold-down pistons comprises at least six hold-down pistons.

20. (Previously Presented) The pump/motor of claim 1 wherein the valve plate is configured to slide against the back plate in an arc exceeding 40 degrees of rotation.

21. (Cancelled)

22. (New) The method of claim 10 wherein changing the displacement of the machine comprises non-rotatably sliding a surface of each of the plurality of hold-down pistons along a face of the reaction plate.

23. (New) A pump/motor, comprising:
a back plate having first and second fluid ports configured to be differentially pressurized;
a plurality of reaction plates rigidly coupled to the back plate;
a valve plate slideably coupled to the back plate and having first and second fluid feed channels configured to receive fluid from the first and second fluid ports, a surface configured to receive a rotatable cylinder barrel, and a plurality of hold-down cylinders;
a cylinder barrel having a plurality of cylinders, rotatably positioned on the surface of the valve plate; and
a plurality of hold-down pistons positioned in respective ones of the hold-down cylinders, each of the hold-down pistons configured to be biased, by pressurized fluid in the respective hold-down cylinder, against a surface of one of the reaction plates, the valve plate and cylinder barrel configured such that a net lifting force of the valve plate and cylinder barrel, exclusive of forces generated in the hold-down cylinders, is positive.

24. (New) A valve plate for a hydraulic machine, comprising:
a first side, having an arcuate surface sized to be slideably received on a back plate for changing a displacement of the hydraulic machine;

a second side, having a valve surface configured to receive a rotatable cylinder barrel;

a plurality of hold-down cylinders distributed along first and second edges of the second side of the valve plate;

a first fluid feed channel in the arcuate surface of the valve plate in fluid communication with a first valve plate aperture in the valve surface, at least one of the plurality of hold-down cylinders distributed along the first edge, and at least one of the plurality of hold-down cylinders distributed along the second edge; and

a second fluid feed channel in the arcuate surface of the valve plate in fluid communication with a second valve plate aperture in the valve surface, at least one of the plurality of hold-down cylinders distributed along the first edge, and at least one of the plurality of hold-down cylinders distributed along the second edge.